

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

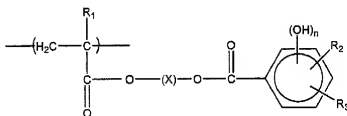
**1. (currently amended):** A negative-working planographic printing plate precursor that can be recorded by a solid laser or a semiconductor laser capable of radiating actinic ray in an ultraviolet to infrared wavelength region of 300 nm to 1,200 nm, and comprises a support having a recording layer containing a polymerizable composition provided thereon, wherein the support is an aluminum sheet, a surface of which has been roughened, and wherein the polymerizable composition comprises:

a binder polymer containing at least an acid group having an acid dissociation constant (pKa) of 5.5 or more and a radical addition polymerizable group; and

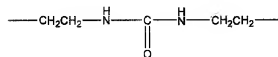
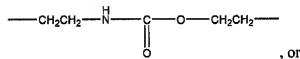
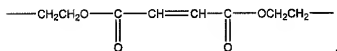
a radical-generating compound capable of generating a radical with light or heat,

wherein the binder polymer comprises a structural unit that has the acid group and that is represented by a formula selected from the group consisting of formulae (2), (3), (4), (5), (6), (7) and (8):

Formula (2)

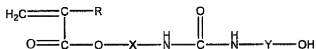


wherein in formula (2), X represents an alkylene group, a substituted alkylene group,  
-CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>-,



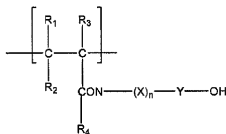
wherein R<sup>1</sup> represents a hydrogen atom, a halogen atom, or an alkyl group; each of R<sup>2</sup> and R<sup>3</sup> independently represents a hydrogen atom, a halogen atom, an alkyl group, a substituted alkyl group, an aromatic group, a substituted aromatic group, -OR<sup>4</sup>, -COOR<sup>5</sup>, -COONHR<sup>6</sup>, -COR<sup>7</sup>, or -CN; R<sup>2</sup> and R<sup>3</sup> may be bonded to each other to form a ring; each of R<sup>4</sup> to R<sup>7</sup> independently represents an alkyl group or an aromatic group; and n represents 2 or 3;

Formula (3)



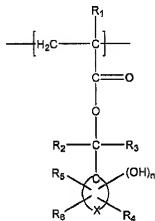
wherein formula (3), R represents a hydrogen atom or an alkyl group; X represents a divalent linking group; and Y represents a divalent aromatic group which may have substituents;

Formula (4)



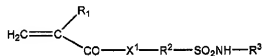
wherein in formula (4), each of  $\text{R}^1$  and  $\text{R}^2$  independently represents a hydrogen atom, an alkyl group, or a carboxylic acid group;  $\text{R}^3$  represents a hydrogen atom, a halogen atom, or an alkyl group;  $\text{R}^4$  represents a hydrogen atom, an alkyl group, a phenyl group, or an aralkyl group; X represents a divalent organic group linking a nitrogen atom to a carbon atom in an aromatic ring; n represents 0 or 1; and Y represents a phenylene group or a naphthylene group, each of which may have substituents;

Formula (5)

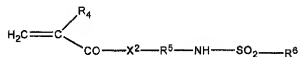


wherein in formula (5),  $R_1$  represents a hydrogen atom, a halogen atom, a cyano group, or an alkyl group; each of  $R_2$  and  $R_3$  independently represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, or an aryl group; each of  $R^4$ ,  $R^5$  and  $R^6$  independently represents a hydrogen atom, an alkyl group, an aryl group or a halogen atom;  $X$  represents an atom necessary for completing a monocyclic or polycyclic carbocyclic aromatic ring system; and  $n$  represents 1, 2 or 3;

Formula (6)



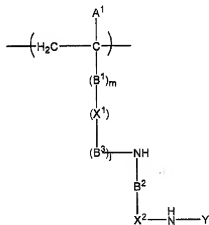
Formula (7)



wherein in formulae (6) and (7), each of  $X^1$  and  $X^2$  independently represents  $-O-$  or  $-NR^7-$ ; each of  $R^1$  and  $R^4$  independently represents  $-H$  or  $-CH_3$ ; each of  $R^2$  and  $R^5$  independently represents an alkylene group, a cycloalkylene group, an arylene group or an aralkylene group

each having from 1 to 12 carbon atoms and each of which may have substituents;  $R^3$  represents -H or an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents;  $R^6$  represents an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents; and  $R^7$  represents a hydrogen atom or an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents;

Formula (8)



wherein in formula (8),  $A^1$  represents a hydrogen atom, a halogen atom, or an alkyl group having from 1 to 4 carbon atoms;  $B^1$  represents a phenylene group or a substituted phenylene group;  $B^2$  represents an alkylene group having from 2 to 6 carbon atoms or a phenylene group, wherein each of which may have substituents;  $B^3$  represents a divalent organic group; each of  $X^1$  and  $X^2$  independently represents  $-CO-$  or  $-SO_2-$ ;  $Y$  represents  $-CO-R^1$  or  $-SO_2-R^1$ ;  $R^1$  represents an alkyl group, a substituted alkyl group, an aromatic group, or a substituted aromatic group; and each of  $m$  and  $j$  represents 0 or 1.

**2. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein the acid group and the radical addition polymerizable group are introduced as a side chain of the binder polymer.

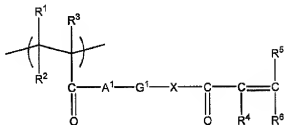
**3. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein the acid group and the radical addition polymerizable group are introduced into terminal ends of a main chain of the binder polymer.

**4. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein the pKa of the acid group is in a range from 7 to 11.5.

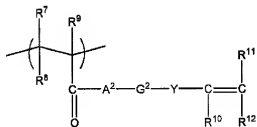
**5-11. (canceled).**

**12. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein the binder polymer comprises at least one of a structural unit that includes the radical addition polymerizable group and that is represented by one of the following formulae (9) to (11):

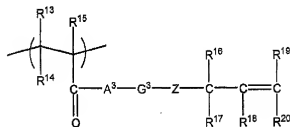
Formula (9)



Formula (10)



Formula (11)



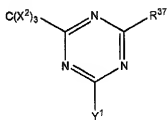
wherein in the above formulas, each of A<sup>1</sup>, A<sup>2</sup> and A<sup>3</sup> independently represents an oxygen atom, a sulfur atom, or -N(R<sup>21</sup>)-; R<sup>21</sup> represents a hydrogen atom or an alkyl group which may have substituents; each of G<sup>1</sup>, G<sup>2</sup> and G<sup>3</sup> independently represents a divalent organic group; each of X and Z independently represents an oxygen atom, a sulfur atom, or -N(R<sup>22</sup>)-; R<sup>22</sup> represents a hydrogen atom or an alkyl group which may have substituents; Y represents an oxygen atom, a sulfur atom, a phenylene group which may have substituents, or -N(R<sup>23</sup>)-; R<sup>23</sup> represents an alkyl group which may have substituents; and each of R<sup>1</sup> to R<sup>20</sup> independently represents a monovalent inorganic or organic group.

**13. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein a mixing ratio of structural units that have the acid groups relative to total structural units contained in the binder polymer is in a range of from 5 to 70 % by mole.

**14. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein a mixing ratio of structural units that have the radical addition polymerizable groups relative to total structural units contained in the binder polymer is in a range of from 5 to 95 % by mole.

**15. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, wherein the radical-generating compound contains at least one selected from the group consisting of an aromatic iodonium salt, an aromatic sulfonium salt, a titanocene compound, and a trihalomethyl-S-triazine compound represented by the following formula (17):

Formula (17)



wherein in formula (17), X<sup>2</sup> represents a halogen atom; Y<sup>1</sup> represents -C(X<sup>2</sup>)<sub>3</sub>, -NH<sub>2</sub>, -NHR<sup>38</sup>, -NR<sup>38</sup>, or -OR<sup>38</sup>; R<sup>38</sup> represents an alkyl group, a substituted alkyl group, an aryl group,



or a substituted aryl group; and  $R^{37}$  represents  $-C(X^2)_3$ , an alkyl group, a substituted alkyl group, an aryl group, a substituted aryl group, or a substituted alkenyl group.

**16. (previously presented):** A negative-working planographic printing plate precursor according to claim 1, further comprising a radical polymerizable compound.

**17. (previously presented):** A negative-working planographic printing plate precursor according to claim 16, wherein a mixing ratio of the binder polymer to the radical polymerizable compound is in the range of 1:0.05 to 1:3 by weight.

**18. (canceled).**

**19. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein the weight average molecular weight of the binder polymer is in a range of 78,000 to 175,000.

**20. (canceled).**

**21. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein a weight average molecular weight of the binder polymer is in a range of 20,000 to 200,000.

**22. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein the polymerizable composition comprises a sensitizing dye.

**23. (canceled).**

**24. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, which further comprises a protective layer provided on the recording layer.

**25. (previously presented):** The negative-working planographic printing plate precursor according to claim 24, wherein the protective layer comprises a polyvinyl alcohol.

**26. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein the polymerizable composition comprises a sensitizing dye, and the support is an aluminum sheet a surface of which has been roughened.

**27. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein the polymerizable composition comprises a sensitizing dye, the support is an aluminum sheet a surface of which has been roughened, and a protective layer is further provided on the recording layer.

**28. (previously presented):** The negative-working planographic printing plate precursor according to claim 1, wherein the polymerizable composition comprises a sensitizing dye, the support is an aluminum sheet a surface of which has been roughened, a protective layer is further provided on the recording layer, and the protective layer comprises a polyvinyl alcohol.